From: Christopher Hazen
To: Fowler, Sarah
Subject: Re: SS811
Date: Friday, September 18, 2015 8:23:25 AM

Sarah - I wanted to advise you that we have redesigned the driveway at Lot 811 to both accomplish the installation of the cut-off wall to minimize secondary impacts, and to further minimize permanent impacts by shifting certain elements of the driveway alignment - we have reduced the impacts at the site due to the attention provided by EPA, so thank you for helping us take a second look at things.
cjh

Chris Hazen
The Terra Firm, Inc.
PO Box 362
Telluride, Colorado 81435
(b) (6)

On Fri, Sep 4, 2015 at 11:55 AM, Chris Hazen <chrishazen@gmail.com> wrote:

> Sounds good 1:30
>
> On Sep 4, 2015, at 10:47 AM, Fowler, Sarah <Fowler.Sarah@epa.gov> wrote:
>
> > No, later. 1:30?
> >
> > Sarah Fowler
> >
> > Biologist
> >
> > Ecosystem Protection Program, EPA Region 8
> >
> > 303-312-6192
> >
> > ---
> >
> > **From:** Chris Hazen [mailto:chrishazen@gmail.com]
> > **Sent:** Friday, September 04, 2015 10:29 AM
> > **To:** Fowler, Sarah
> > **Subject:** Re: SS811
> >
> > Would noon work?
> >
> > On Sep 4, 2015, at 10:15 AM, Fowler, Sarah <Fowler.Sarah@epa.gov> wrote:
> >
> > > sure

Sarah Fowler

Biologist

Ecosystem Protection Program, EPA Region 8

303-312-6192

From: Chris Hazen [mailto:chrishazen@gmail.com]
Sent: Thursday, September 03, 2015 3:22 PM
To: Fowler, Sarah
Cc: Silver, Wendy; Sheata, Carrie A
Subject: Re: SS811

Sarah can I give you a call?

On Sep 3, 2015, at 3:14 PM, Fowler, Sarah <Fowler.Sarah@epa.gov> wrote:

> Chris, I would suggest that you get a geotechnical design and PE stamp on anything that is designed to cover both you and the property owners. An easier design may be available using sheet pile, pilings, etc. I just don't know the full story on designing barrier walls.
>
> Sarah Fowler
>
> Biologist
>
> Ecosystem Protection Program, EPA Region 8
>
> 303-312-6192
>
> **From:** Christopher Hazen [mailto:chrishazen@gmail.com]
> **Sent:** Thursday, September 03, 2015 12:40 PM
> **To:** Fowler, Sarah; Silver, Wendy
> **Subject:** SS811
>
> Hi Sarah and Wendy,
>
> I hope your return trip was uneventful.

I wanted to discuss an alternative to the cast-in-place cutoff wall we discussed in the field. Rather than opening up a very wide trench to form a footer and stemwall as contemplated on-site I would like to propose a Flow-Fill (concrete) wall that would be poured directly in a trench.

The advantage here is that we can retain in-situ material on either side of the trench (upslope and downslope) to assist with stability and minimize disturbance by using a much narrower trench. If we were to cast-in-place using forms for the concrete we need to open the trench to a 5' minimum width so we can set forms in the trench - this assumes a maximum depth of 4' - if we need to go deeper to reach the confining layer then we will need to lay-back the slopes of the trench for OSHA safety reasons. Then we need to backfill, compact and hope that there are not any voids that water will track through.

By using a trenching bucket (1' width) on a mini-excavator we can dig to the required depth with a narrow disturbance without needing to open up a wide trench - we can then use Flow-Fill (concrete) to fill the trench to create the cutoff wall. This design will have the same effect on the groundwater as the cast-in-place cutoff wall Sarah proposed. Plus it will not require backfilling as the flow-fill will completely fill the trench. This will eliminate voids and the possibility of uneven compaction during the backfill process.

I would appreciate the opportunity to discuss this further - I think it is a better approach and it will minimize disturbance south of the proposed retaining wall - as that area is wetlands we should be minimizing the disturbance footprint when installing the cutoff wall. Furthermore it will be safer.

It was great to see you two ..

Chris

Chris Hazen

The Terra Firm, Inc.

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Telluride, Colorado 81435

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